

### **REMARKS**

Claims 1-14 were previously pending in this application. By this amendment, Applicants are canceling claim 2 without prejudice or disclaimer. Claims 15-20 have been added. As a result, claims 1 and 3-20 are pending with claims 1, 8, 10, and 14 being independent claims.

Claims 1, 3, 8, 10, and 12 have been amended herein. Claims 3, 8, and 12 have merely been amended to address formalities and not for any substantial reason relating to patentability. Claims 1 and 10 have been amended to clearly distinguish over the cited art. No new matter has been added.

#### **I. Objections to the Specification**

The disclosure is objected to as containing an informality at line 31 of page 11. The specification has been amended to correct the informality. Accordingly, withdrawal of this objection is respectfully requested.

#### **II. Objections to the Claims**

Each of claims 8 and 12 are objected to as containing an informality at line 2 thereof. These claims have been amended to correct the informalities. Accordingly, withdrawal of these objections is respectfully requested.

#### **III. Rejections Under 35 U.S.C. §102(a)**

Claims 1, 2, 6, 7, and 10-13, including independent claims 1 and 10, are rejected under 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 5,838,758 ("Krug"). Claim 1 has been amended to recite the limitations of claim 2 (cancelled herein), and the rejection of the subject matter of claim 2 is respectfully traversed. Claim 10 has been amended to clearly distinguish over Krug.

a. Claim 1 and Corresponding Dependent Claims

Claim 1, as amended, is directed to a method for analyzing an object comprising prescanning the object using a multiple energy X-ray device to determine information indicative of effective atomic number characteristics of the object, transmitting the information to a processor coupled to a computed tomography device, and conducting scans of areas of interest of the object with the computed tomography device based upon the information.

Krug discloses coupling a CT scanner with a dual energy x-ray inspection device, wherein the dual energy x-ray device serves to indicate suspect regions in the baggage that warrant inspection by the CT scanner (Col. 32, lines 29-35). Positional information concerning the suspicious regions is conveyed from the dual energy x-ray device to the CT scanner (Col. 32, lines 35-37).

Krug does not disclose prescanning the object using a multiple energy X-ray device to determine information indicative of effective atomic number characteristics of the object and *transmitting the information indicative of effective atomic number characteristics of the object to a processor coupled to a computed tomography device*, as recited in claim 1. Rather, Krug discloses conveying positional information concerning the locations of suspicious regions from an x-ray detector to a CT scanner.

In view of the foregoing, Krug does not teach or suggest transmitting information indicative of effective atomic number characteristics of an object to a processor coupled to a computed tomography device, as recited in claim 1. Accordingly, withdrawal of the rejection of claim 1 is respectfully requested.

Claims 2-9 depend from claim 1 and are allowable for at least the same reasons.

b. Claim 10 and Corresponding Dependent Claims

Claim 10, as amended, recites an apparatus for analyzing an object comprising a multiple energy prescanner that prescans the object, and a computed tomography device that scans areas of interest of the object based on information indicative of effective atomic number characteristics of the object transmitted from the multiple energy prescanner.

Krug does not disclose a computed tomography device that scans areas of interest of an object *based on information indicative of effective atomic number characteristics of the object transmitted from a multiple energy prescanner*, as recited in claim 10. Rather, as discussed in connection with claim 1, Krug discloses a system wherein only positional information concerning the locations of suspicious regions is conveyed from an x-ray detector to a CT scanner.

In view of the foregoing, Krug does not teach or suggest a computed tomography device that scans areas of interest of an object based on information indicative of effective atomic number characteristics of the object transmitted from a multiple energy prescanner, as recited in claim 10. Accordingly, withdrawal of the rejection of claim 10 is respectfully requested.

Claims 11-13 depend from claim 10 and are allowable for at least the same reasons.

#### IV. Rejections Under 35 U.S.C. §103(a)

Claims 3, 4, 8, 9 and 14, including independent claims 8 and 14, are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,838,758 (“Krug”) in view of U.S. Patent No. 5,243,664 (“Tuy”). Claim 5 is rejected under 35 U.S.C. §103(a) as being obvious over Krug in view of Tuy and further in view of U.S. Patent No. 5,905,809 (“Timmer”). These rejections are respectfully traversed.

##### a. Claim 8 and Corresponding Dependent Claim 9

Claim 8 is directed to a method for analyzing an object comprising prescanning the object using a multiple energy X-ray device to determine prescan information, transmitting the prescan information to a processor coupled to a computed tomography device, performing a computed tomography scan of a plane of the object based on the prescan information, and performing a metal artifact correction on the computed tomography scan based on the prescan information if the plane intersects an area including or near a metal object.

The Office Action concedes that Krug fails to teach performing a metal artifact correction on a computed tomography scan based on prescan information if a plane intersects an area including or near a metal object, as recited in claim 8. However, the Office Action alleges that it

would have been obvious to a person of ordinary skill in the art to perform a metal artifact correction based on prescan information since Tuy discloses that a computed tomography image that includes metallic objects would have severe artifacts.

Applicants respectfully disagree that any combination of Krug and Tuy teaches or suggests performing a metal artifact correction on a computed tomography scan based on prescan information, as recited in claim 8. The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art (MPEP §2143.01). Tuy discloses performing a metal artifact correction based on original set of CT data that is also used to generate the CT image. Tuy does not disclose performing a metal artifact correction based on prescan information. Thus, it is respectfully asserted that the combined teachings of Krug and Tuy, at most, may have motivated a person of ordinary skill in the art to modify the Krug system to perform metal artifact correction in the manner suggested in Tuy (i.e., based on the CT scan information).

In view of the foregoing, no combination of Krug and Tuy teaches or suggests performing a metal artifact correction on a computed tomography scan based on prescan information if a plane intersects an area including or near a metal object, as recited in claim 8. Accordingly, withdrawal of the rejection of claim 8 is respectfully requested.

Claim 9 depends from claim 8 and is allowable for at least the same reasons.

b. Claim 14

Claim 14 is directed to an apparatus for analyzing an object comprising a multiple energy prescanner and a computed tomography device, wherein information indicative of at least one metal artifact is transmitted from the multiple energy prescanner to the computed tomography device.

The Office Action concedes that Krug fails to teach that information indicative of at least one metal artifact is transmitted from a multiple energy prescanner to a computed tomography device, as recited in claim 14. However, the Office Action alleges that it would have been obvious to a person of ordinary skill in the art to transmit information indicative of at least one

metal artifact from a multiple energy prescanner to a computed tomography device to obtain a CT reconstructed image that is free of metal artifacts by performing metal artifact correction.

Applicants respectfully disagree that any combination of Krug and Tuy teaches or suggests that information indicative of at least one metal artifact is transmitted from a multiple energy prescanner to a computed tomography device, as recited in claim 14. Even if one were motivated to obtain a CT image that is free of metal artifacts based on the teachings of Tuy, as suggested in the Office Action, Applicants respectfully assert that one would only be motivated to do so in the manner disclosed in Tuy. Tuy discloses performing a metal artifact correction based on original set of CT data that is also used to generate the CT image. Thus, even if the system of Krug were modified to include metal artifact correction of the CT image, information indicative of at least one metal artifact would not be transmitted from the multiple energy prescanner to the computed tomography device, as Tuy discloses that information indicative of metal artifacts is derived from original CT data.

In view of the foregoing, no combination of Krug and Tuy teaches or suggests that information indicative of at least one metal artifact is transmitted from a multiple energy prescanner to a computed tomography device, as recited in claim 14. Accordingly, withdrawal of the rejection of claim 14 is respectfully requested.

c. Dependent Claims 3 -5

Claims 3-5 depend from independent claim 1, and are believed to be allowable for at least the same reasons as claim 1, discussed in section III above. Accordingly, for the sake of brevity, Applicants believe that it is unnecessary at this time to individually argue the allowability of claims 3-5 and reserve the right to specifically address the patentability these claims in the future, if deemed necessary.

V. New Claims

Claims 15-18 have been added to further define Applicants' contribution to the art. Claims 15-17 and 18-20 are believed to be allowable at least on the basis of their dependency from independent from claims 1 and 10, respectively.

No new matter has been added. Claims 15 and 18 are clearly supported by the specification as filed, e.g., at lines 10-14 of page 7. Claims 16-17 and 19-20 are clearly supported by the specification as filed e.g., at line 22 of page 5 to line 17 of page 6.

**Conclusion**

In view of the foregoing, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicants' attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,  
*Richard R. Bijjani et al., Applicants*

By: Melissa Beede  
Melissa A. Beede Reg. No. 54,986  
Wolf, Greenfield & Sacks, P.C.  
600 Atlantic Avenue  
Boston, Massachusetts 02210-2211  
Telephone: (617) 720-3500

Docket No. L0632.70001US04  
Date: July 21, 2004  
x07/21/04